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The centipedes of the Maltese Archipelago (Chilopoda)

Marzio ZAPPAROLI[1], Alessandro MINELLI[2] & Patrick J. SCHEMBRI[3]
[1] Dipartimento di Protezione delle Piante, Università degli Studi della Tuscia, Via San Camillo de Lellis, I-01100 Viterbo, Italy.
[2] Dipartimento di Biologia, Università di Padova, Via Ugo Bassi 58 B, I-35131 Padova, Italy.
[3] Department of Biology, University of Malta, Msida MSD06, Malta.

The centipedes of the Maltese Archipelago (Chilopoda). - The chilopod fauna of the Maltese Islands (Malta, Gozo, Comino) was studied from a faunistic and zoogeographic point of view. A list of the species found on these islands is given, based on recent faunistic investigations as well as on a critical assessment of the few records available in the literature. Twenty-one species are recorded to occur on the islands: 1 Scutigeromorpha, 7 Lithobiomorpha, 3 Scolopendromorpha, and 10 Geophilomorpha. Twenty species are confirmed to occur on the island of Malta, 11 on Gozo and three on Comino. The Maltese chilopod fauna mostly consists of species that are widespread in the Mediterranean islands, particularly those of the western Mediterranean. As shown in other studies on the chilopod faunas of other Mediterranean micro-insular systems, that of the Maltese Islands is mainly influenced by ecological factors rather than by paleogeographic and paleoclimatic ones. Zoogeographically the Maltese chilopod fauna is mainly Mediterranean in character, with a very limited representation of Holarctic (22%) and European (11%) species.

Key-words: Chilopoda - Maltese Islands - Malta - Gozo - Comino - fauna - biogeography.

INTRODUCTION

Very few papers have been devoted to the Maltese centipedes so far. The first lists of species were published at the end of the nineteenth century by the Maltese naturalist Giovanni Gulia (Gulia, 1890, 1913), who recorded only three species, all probably collected and studied by himself. About eighty years later, Matic *et al.* (1967) listed another seven species from material collected in 1965 by Marcello La Greca and co-workers, as part of a research programme on the Mediterranean fauna carried out by the Zoological Institute of the University of Catania (Italy). After that, the only published work on this subject known to us is a list of 12 species from the Maltese Islands, in a study on the centipede fauna of the West Mediterranean area by Foddai *et al.* (1996).

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Recently (mainly in the eighties), research on the Maltese fauna has been taken up by workers from the University of Malta and ample material has been collected from the main islands of the archipelago. This material, together with specimens occasionally collected by Italian universities and natural history museums, is the subject of the present study.

The aim of this paper is to list and discuss this material and all the previously published records of chilopods from the Maltese islands.

STUDY AREA

The Maltese archipelago (Fig. 1), situated in the central Mediterranean, approximately 96 km from Sicily and 290 km from North Africa, consists of three inhabited islands, i.e. Malta (246.5 km^2), Gozo (65.8 km^2) and Comino (2.9 km^2) and of a number of small uninhabited islets (each less than 10 ha). The islands are mainly composed of Oligo-Miocene limestones, the soils are young and very similar to the parent rocks, and there are no mountains, streams or lakes, but only minor springs. The climate is typically Mediterranean and strongly bi-seasonal: the average annual rainfall is c. 530 mm, of which some 85% falls during the period October to March; the mean monthly temperature range is 12-26°C, and the islands are very windy and sunny. The main geomorphological features are karstic limestone plateaux, hillsides covered with clay taluses, gently rolling limestone plains, valleys (*widien*, see below) that drain runoff during the wet season, steep sea-cliffs on the south-western coasts, and gently sloping rocky shores to the Northeast. The islands have been more or less continuously inhabited since 7000 BP and human impact is significant. Presently some 38% of the land area is cultivated, c. 25% is built up, and the rest is countryside.

The terrestrial habitats of the Maltese Islands are mainly characterized by the vegetation which can be grouped in three categories: (i) communities that are part of the successional sequence (steppe, garigue, maquis) towards a climax (sclerophyll forest); (ii) communities which are either specialised to occupy particular habitats, or occupy habitats that are rare on the islands, or are relics from a previous ecological regime, now surviving in a few refugia; and (iii) vegetational assemblages of disturbed habitats, occupying land subject to periodic disturbance, usually related to anthropic activities.

It is thought that before humans colonised the Maltese Islands, large areas were covered with a Mediterranean sclerophyll forest characterised by *Quercus ilex* and *Pinus halepensis*. The early settlers cut the trees for wood and to clear the land for agriculture and buildings, and introduced sheep and goats whose grazing and browsing prevents the trees from regenerating. The native forest on the Maltese Islands is all but extinct and only remnants persist at four localities, none of which has more than a few dozen trees. More extensive tree-covered areas nonetheless exist on the islands; however, all owe their origin to human activities (e.g., gardens, plantations, orchards etc.). Although originally planted, some are now self-maintaining and self-regenerating, and therefore qualify as semi-natural woodlands.

The Maltese maquis is an impoverished scrub community resulting from degeneration of the climax woodland due to cutting, grazing and erosion of the soil. A

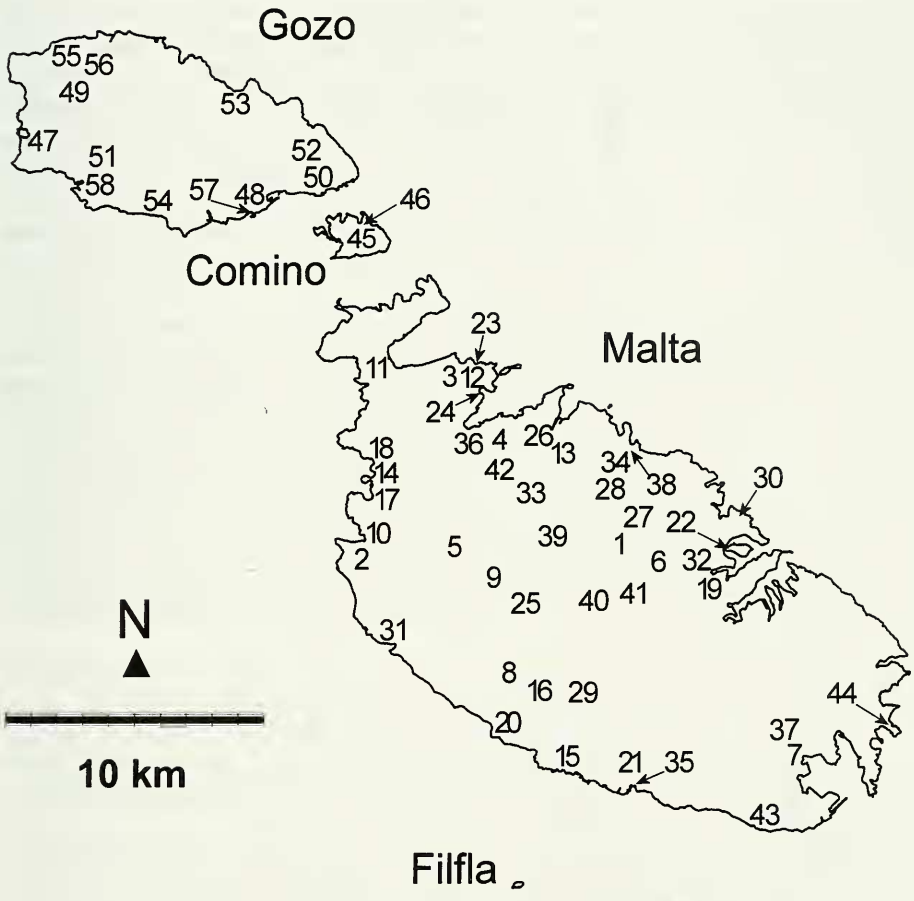

FIG. 1

Map of the Maltese Islands showing the localities from where centipedes recorded in this paper were collected. Key (in alphabetical order): **Malta**: 1 Attard, 2 Bahrija (Wied tal-Bahrija), 3 Ballut ta' l-Imgiebah, 4 Ballut tal-Wardija/Wardija, 5 Bingemma Gap, 6 Birkirkara, 7 Borg in-Nadur (Birzebbuga), 8 Buskett, 9 Chadwick Lakes, 10 Fomm ir-Rih, 11 Ghadira, 12 Ghajn Hadid (Selmun), 13 Ghajn Rihana, 14 Ghajn Tuffieha, 15 Ghar Lapsi, 16 Girgenti, 17 Gnejna, 18 Golden Bay, 19 Gwardamangia, 20 Il-Fawwara (Dingli Cliffs), 21 Il-Maqluba (Qrendi), 22 Manoel Island, 23 Mgiebah Bay, 24 Mistra Bay/Tal-Kortin, 25 Rabat (St. Agatha's Catacombs), 26 Salina, 27 San Anton Gardens, 28 San Pawl tat-Targa, 29 Siggiewi, 30 Sliema, 31 Ta' Hammud (Mtahleb), 32 Tal-Qroqq (UOM), 33 Targa Gap, 34 Wied Anglu, 35 Wied Babu, 36 Wied Bufula, 37 Wied Hassabtan, 38 Wied il-Faham, 39 Wied il-Ghasel (Mosta), 40 Wied Incita, 41 Wied is-Sewda, 42 Wied Qannotta, 43 Wied Znuber, 44 Xrobb l-Ghagin; **Comino**: 45 Central area, 46 Santa Marija Bay; **Gozo**: 47 Dwejra, 48 Fort Chambray slopes, 49 Gharb , 50 Hondoq ir-Rummien, 51 Kercem, 52 Qala, 53 Ramla, 54 Ta' Cenc, 55 Wied ic-Cawla, 56 Wied il-Mielah, 57 Xatt l-Ahmar, 58 Xlendi.

semi-natural maquis survives in relatively inaccessible sites, such as the sides of steep valleys, and at the foot of escarpments, while an artificial maquis develops round previously cultivated trees, mainly *Olea europaea* and *Ceratonia siliqua*.

The most widespread natural vegetation type present is the garigue. Some garigue communities are natural, others result from degradation of forest and maquis, particularly where removal of the original vegetation cover has caused such extensive soil erosion that large tracts of the limestone bedrock have become exposed and only patches of stony soil still occur. Garigues are typical of such rocky ground and are especially common on the flat karstic limestone platforms of western Malta and the Gozitan hills. Many subtypes of Maltese garigue exist; the principal ones are those dominated by *Coridothymus capitatus*, *Anthyllis hermanniae*, *Teucrium fructicans*, *Erica multiflora*, and the endemic *Euphorbia melitensis*; mixed garigues dominated by two, three or more of these species are also common.

Steppic assemblages dominated by grasses, umbellifers, thistles and geophytes are widespread and result from degradation of the maquis and garigue, due to grazing and browsing and from soil erosion due to the short but heavy rainstorms which are characteristic of the islands. Some steppic communities are, however, climactic or semi-climactic with *Lygeum spartum* on clay slopes, or with *Hyparrhenia hirta* and *Andropogon distachyus*. Other steppes are characterised by *Brachypodium retusum* or, rarely, by *Phalaris truncata*. The more degraded steppes are characterised by *Stipa capensis* and *Aegilops geniculata* and a variety of thistles (e.g., *Carlina involucrata*, *Notobasis syriaca*, *Galactites tomentosa*) and geophytes (e.g., *Asphodelus aestivus*, and *Urginea pancration*). Steppic communities also develop on abandoned agricultural land, which is increasing in extent.

Habitats that are not part of the successional sequence include coastal marshlands, sand dunes, maritime vegetation, freshwater, and rupestral communities.

Maltese coastal marshes are characterized by a muddy substratum on which a pool of brackish water collects in the wet season. During the dry season this water becomes progressively more brackish until it finally disappears completely, leaving the marsh dry until the following wet season.

Many local sandy beaches were backed by dune systems, but at present only very few persist and even these have been much degraded mainly due to human activities in connection with beach development for touristic purposes and recreational use. Sand dune ecosystems are thus amongst the rarest and most threatened of local ecosystems. Local dunes are dominated by the dune grasses *Elytrigia juncea* and *Sporobolus pungens*, and, until recently, also by *Ammophila littoralis* which has now been totally extirpated.

On gently sloping rocky shores halophytic vegetation grows in isolated patches on the shallow saline soil that accumulates in pockets of the rock. The species present form part of the Mediterranean vegetational community called the *Crithmo-Limonietum*.

Rupestral assemblages dominated by shrubs occur on sheer rock faces and cliff/scree environments, mainly at the south, southwest and west coasts of the islands. Because of their relative inaccessibility these habitats provide important refuges for many species of Maltese flora and fauna, including many endemics, amongst which are two plant taxa (*Palaeocyanus crassifolius* and *Cremnophyton lanfrancoi*) belonging to monotypic genera.

The main freshwater habitats are those associated with valleys (in Maltese: *widien*), which are geomorphologically dry valleys, that is, valleys formed during a

previous climatic regime (the Pleistocene pluvial periods), which are now dry for some months of the year and in which water only flows during the wet season. However, some local *widien* drain springs originating from perched aquifers and retain some surface water even during the dry season. Other freshwater habitats are temporary rainwater pools, formed by rainwater that collects in natural depressions and hollows in rock during the wet season, and a few permanent ponds.

In spite of being made up almost exclusively of limestone, the Maltese Islands have surprisingly few known deep caves. Those caves that have been explored biologically have revealed an impoverished but interesting biota with a number of endemic invertebrates.

Because of the islands' high human population and considerable land use, anthropogenic habitats have a large coverage. Such habitats are dominated by a variety of plant species consisting mainly of ruderals and aliens. Different types occur in association with agriculture, afforestation, abandoned fields, along roadsides, in disturbed seaside habitats and in urban areas.

The above synthesis is based on Alexander (1988), Axiak *et al.* (2002), Bowen Jones *et al.* (1961), Chetcuti *et al.* (1992), Haslam *et al.* (1977), Lanfranco (1995), Pedley *et al.* (1976), Schembri (1993, 1997), Schembri *et al.* (1999), Schembri & Lanfranco (1993), and Vossmerbäumer (1972); these works should be consulted for more detail and for an extensive bibliography.

MATERIAL AND METHODS

The present paper is based on literature records that have been critically revised, and on unpublished material. For each species the following is reported: the scientific name; the complete name of the author and year of publication; the bibliographic references concerning the study area listed chronologically, with the name of the species and author as originally quoted; the general geographic distribution, mainly as a list of the countries or geopolitical units from where the species is known, critically revised from the literature; the chorotype according to Vigna Taglianti *et al.* (1992, 1999); the list of collecting sites for the species in the Maltese Islands, arranged according to island (Malta, Comino, Gozo), with the collecting sites for each island listed alphabetically; a synthesis of available data on habitat preferences in the study area; and taxonomic remarks where relevant.

The following acronyms are used for the collectors of the material examined and for the collections where this material is now deposited. Collectors: AD = A. Deidun; AV = A. Valle; CA = Causin; DC = D. Caruso; DJ = D.M. Johnson; EG = E.H. Giglioli; EL = E. Lanfranco; GT = G.B. Toscanelli; JS = J.L. Schembri; LM = L. Main; MG = M. Gauci; MP = M. Pace; PS = P.J. Schembri; SA = S. Azzopardi; SS = S. Schembri; ST = S. Saliba. Collections: AM = A. Minelli; BG = Museo Civico di Scienze naturali "E. Caffi", Bergamo, Italy; CT = Dipartimento di Zoologia, Università di Catania, Italy; DBUM = Department of Biology, University of Malta; FI = Museo di Storia naturale di Firenze, sezione Zoologica "La Specola"; MHNG = Muséum d'histoire naturelle, Genève; MZ = M. Zapparoli.

LIST OF THE SPECIES

SCUTIGEROMORPHA Gervais, 1837
SCUTIGERIDAE Gervais, 1837

Scutigera Lamarck, 1801

1. ***Scutigera coleoptrata*** (Linné, 1758)

Cermatia variegata Risso: Gulia, 1890: 41.
Cermatia variegata: Gulia, 1913: 554.
Scutigera coleoptrata: Schembri, 1996: 120.

Material examined. Malta: 1, Ballut ta' l-Imgiebah, 8.4.1984, PS (MZ, MZ det.); 1, Chadwick Lakes, 7.3.1975, DC (CT, AM det.); 1, G'Mangia, 1987, MG (MZ, MZ det.); 1, Malta, 5.1973, AV (BG, AM det.); 1, Manoel Island, 16.3.1985, PS (MZ, MZ det.); 1, S. Antonino [= San Anton Gardens], 12.3.1975, leg. ? (CT, AM det.); Siggiewi, 6.1982, MP (MZ, MZ det.).

General distribution. Portugal, Spain (incl. Balearic Is.), France (incl. Corsica), Italy (incl. Sardinia and Sicily), Switzerland, S. Germany, Austria, Czech Republic, Slovakia, S. Hungary, Slovenia, Croatia, Montenegro, FYR Macedonia, Albania, mainland and insular Greece (incl. Crete), Bulgaria, Romania, Ukraine (incl. Crimea), Caucasus, Near and Middle East, N. Africa (Egypt, Libya, Tunisia, Algeria, Morocco); also recorded from Madeira and the Canary Is. (introduced ?); introduced in Central and N. Europe, Asia, N. America, S. Africa, St. Helena, Argentina (Attems, 1907; Würmli, 1973, 1977).

Chorotype. Mediterranean (MED).

Ecological notes. Widespread species on the Maltese Islands, occurring in a range of habitats, usually with some degree of humidity, including human habitations and their surroundings (leaf litter, under thick vegetation, under stones on soil, in cellars etc).

LITHOBIOMORPHA Pocock, 1895
LITHOBIIDAE Newport, 1844

Eupolybothrus Verhoeff, 1907

Subgenus ***Allopolybothrus*** Verhoeff, 1907

2. ***Eupolybothrus (Allopolybothrus) nudicornis*** (Gervais, 1837)

Eupolybothrus elongatus (Newp.): Matic *et al.*, 1967: 197.

Material examined. Malta: 7, Attard, 5.3.1975 (CT, AM det.); 1 ♂, Bahrija Valley, 25.3.1984, PS & SS (DBUM, MZ det.)1 ♀, Bingemma Gap, 24.3.1984, SS (MHNG, MZ det.); 1, Birkirkara, 10.1969, CA (MZ, MZ det.); 1, Buskett, 12.1.1980, PS (MZ, MZ det.); 1, Chadwick Lakes, 23.4.1983, PS (MZ, MZ det.); 1, Ghadira, 27.12.1979, PS (MZ, MZ det.); 1 juv., Ghajn Hadid, Selmun, 5.12.1983, MG (MHNG, MZ det.); 1, Ghar Lapsi, 6.3.1975, DC (CT, AM det.); 2, Malta, 2.3.1975, leg. ? (CT, AM det.); 4 ♂, 1 ♀, 1 ♀ juv., Manoel Island, 16.3.1985, PS (MZ, MZ det.); 1, Mistra Bay, 3.3.1975, DC (CT, AM det.); 1 ♂, Rabat, St. Agatha's Catacombs, 16.7.1984, MG (MHNG, MZ det.); 2 ♂, San Pawl tat-Targa, garden, pitfall trap, 17.2.1985, DJ (DBUM, MZ det.); 1 ♀, Tal-Kortin, Mistra, 18.3.1984, PS (MZ, MZ det.); 2 ♂, 1 ♀, Tal-Qroqq, UOM, under stones, *Acacia* stand, 27.3.1984, SA & LM (MZ, MZ det.); 4 ♂, 1 ♀, ibidem, pitfall trap, *Acacia* stand, 5.4.1984, SA & LM (MHNG, MZ det.); 5 ♂, 2 ♀, ibidem, carob, under stones, 16.4.1984, SA & LM (MZ, MZ det.); exx., Targa Gap, 10.1.1970,

leg.?; 3 juv., Wied Anglu, under stones, in watercourse, 16.12.1984, PS (MHNG, MZ det.); 2, Wied Babu, 23.5.1985, SS (MZ, MZ det.); exx., Wied Hassabtan, 20.1.1970, leg.? (MZ, MZ det.); 2 ♂, 1 ♀, Wied Incita, 25.3.1984, PS & SS (DBUM, MZ det.); 1, Wied is-Sewda, 26.3.1975, SS (MZ, MZ det.); 1 ♂ juv., 2 ♀ juv., Wied il-Ghasel, Mosta, garigue, under stones, 26.1.1985, PS (DBUM, MZ det.). Gozo: 1, Dwejra, 7.3.1975, DC (CT, AM det.); 1 ♀ juv., 1 imm., limits of Gharb, 14.2.1985, PS (MHNG, MZ det.); 1, Qala, 13.3.1975, DC (CT, AM det.); 2 ♀ juv., Wied il-Mielah,16.2.1985, PS (DBUM, MZ det.).

General distribution. SE. France (Basses Alpes, Alpes Maritimes), Corsica, Italy (Apennines), Sardinia, Sicily, Malta, NE. Morocco, N. Tunisa, N. Algeria (Brölemann, 1921, 1930; Foddai *et al.*, 1995; Matic *et al.*, 1967; Zapparoli, 1984). Reported also from Spain by Attems (1927, 1952), but record needs to be confirmed.

Chorotype. W-Mediterranean (WME).

Remarks. The old records of Gulia (1890, 1913) quoted under *Lithobius forficatus* (Linnaeus, 1758) may refer to this species (see below).

Ecological notes. Common and widespread species on the Maltese Islands, occurring in a range of habitats that include *widien*, leaf litter under trees such as *Acacia* and *Ceratonia siliqua*, under stones in garigue, coastal vegetation, gardens and urbanised areas.

Lithobius Leach, 1814

Subgenus ***Lithobius*** Leach, 1814

3. ***Lithobius (Lithobius) castaneus*** Newport, 1844

Material examined. Malta: 1 ♀, Ghajn Rihana, 25.3.1984, PS (MHNG, MZ det.); 1, Malta, 2.3.1975, DC (CT, AM det.); 1, Malta, 5.4.1978, leg.? (MZ, MZ det.); 1, Il-Maqluba, 20.1.1980, SS (MZ, MZ det.); 1, ibidem, 14.2.1982, PS (MZ, MZ det.); 1 ♂ juv., San Pawl tat-Targa, garden, pitfall trap, 3.2.1985, DJ (MHNG, MZ det.); 1 ♂, 1 ♀, Tal-Qroqq, UOM, under stones, *Acacia* stand, 27.3.1984, SA & LM (DBUM, MZ det.); 3, ibidem, pitfall trap, *Acacia* stand, 5.4.1984, SA & LM (MZ, MZ det.); 6 ♀, ibidem, carob, under stones, 16.4.1984, SA & LM (MZ, MZ det.); 1 ♀, Wied Babu, 23.5.1985, SS (MHNG, MZ det.); 1 ♀, Wied l-Ghasel, Mosta, garigue, under stones, 26.1.1985, PS (DBUM, MZ det.).

General distribution. Morocco, Tunisia, Algeria, Portugal, Spain, France (incl. Corsica), Italy (including Sardinia and Sicily), Malta, S. Austria, Slovenia, Croatia, Bosnia Herzegovina, Serbia (Brölemann, 1921, 1930, 1932; Eason, 1982; Foddai *et al.*, 1995; Kos, 1992; Machado, 1952; Matic *et al.*, 1967; Stoev, 1997; Zapparoli, 1981); the species has been reported from Bulgaria, but records require confirmation (Stoev, 2002); introduced in Guatemala (Eason, 1973).

Chorotype. S-European (SEU).

Ecological notes. Common and widespread; occurring in a variety of habitats including *widien*, leaf litter under trees, under stones in garigue, and in gardens.

4. ***Lithobius (Lithobius) forficatus*** (Linnaeus, 1758)

Lithobius forficatus Leach [sic]: Gulia, 1890: 41.
Lithobius forficatus: Gulia, 1913: 554.

Material examined. No material from Malta examined (cf. Remarks).

General distribution. Iceland (introduced), Finland, Norway, Sweden, Denmark, United Kingdom, Ireland, Netherlands, France (incl. Corsica, but introduced),

Germany, Poland, Czech Republic, Slovakia, Hungary, Switzerland, Austria, Italy (incl. Sardinia and Sicily (Eolian Is.), but introduced in both), Slovenia, Croatia, Bosnia Herzegovina, Serbia, Montenegro, FYR Macedonia, Romania, Bulgaria, Albania, mainland Greece, N. Turkey, Georgia, Russia (Krasnodar Prov.); also present in N. Africa (introduced?) and in Malta (introduced); from the W-Palearctic it has been introduced to N. America, S. America, St. Helena, Hawaii Is. (established?), Kuriles (Brölemann, 1930; Eason, 1964, 1970, 1982, 1996; Enghoff, 1983; Foddai *et al.*, 1995; Kos, 1992; Országh, 2001; Stoev, 1997; Tajovský, 2001; Wytwer, 1997; Zalesskaja, 1978; Zapparoli, 1999).

Chorotype. European (EUR).

Remarks. According to Zapparoli (1995a) this species has a very limited distribution in the micro- and macro-insular systems of the Mediterranean area, although it is highly anthropophilous. *L. forficatus* has never been recorded from the Balearic Is., Corsica, Sardinia, Sicily, Crete and Cyprus, from where it must be considered absent. In the Tyrrhenian area only a few records from Capri, the Eolian Is. (Lipari, Vulcano) and Lampedusa are known, all probably resulting from anthropic introductions. The only record of this species from the Maltese Islands is that of Gulia (1890, 1913), however, in spite of the in-depth research carried out no new records have been added since the end of the 19th century and we suspect that Gulia's record from Malta may be based on a misidentification and probably refers to another lithobiid species (possibly *E. nudicornis* ?).

Ecological notes. No data available.

5. ***Lithobius (Lithobius) lapidicola*** Meinert, 1872

Material examined. Malta: 1 ♂, Buskett, leaf litter on tree, 30.12.1978, SS (MZ, MZ det.); 4 ♂, 3 ♀, Sliema, 22/23.12.1969, EL (MZ, MZ det.).

General distribution. Canary Is., Ireland, United Kingdom, Sweden, Netherlands, Germany, Switzerland, Denmark, Poland, Czech Republic, Slovakia, Ukraine, France (incl. Corsica), Italy (incl. Sardinia and Sicily), Austria, Hungary, Slovenia, Bosnia Herzegovina, Montenegro, Romania, Albania, mainland Greece (incl. Ionian Is.) (Brölemann, 1930; Eason, 1964, 1970, 1982, 1985, 1996; Enghoff, 1983; Foddai *et al.*, 1995, 1996; Kos, 1992; Országh, 2001; Stoev, 1997; Tajovský, 2001; Wytwer, 1997; Zalesskaja, 1978).

Chorotype. European (EUR).

Ecological notes. Records available at present indicate that this is a leaf litter species which occurs in semi-natural wooded areas (Buskett) and in urban gardens (Sliema).

6. ***Lithobius (Lithobius) peregrinus*** Latzel, 1880

Material examined. Malta: 1 ♂, Malta, date?, SS (MZ, MZ det.).

General distribution. SE. Italy (Gargano), Bosnia Herzegovina, Montenegro, FYR Macedonia, Albania, mainland Greece (incl. Ionian Is.), Bulgaria, Caucasus; introduced in the United Kingdom, France, Spain, NE. Italy, S. Africa, Bermuda Is., Panama (Stoev, 1997, 2001; Zapparoli, 1992).

Chorotype. S-European (SEU).

Remarks. There are no previous records of this species from Malta, were it has probably been introduced.

Ecological notes. No data available.

7. ***Lithobius (Lithobius) trinacrius*** Verhoeff, 1925

Material examined. Malta: 1 ♂, Ballut ta' l-Imgiebah, 8.4.1984, PS (MHNG, MZ det.); 1 ♂, Ghajn Hadid, 8.5.1983, PS (MZ, MZ det.); 1 ♀, Ghajn Hadid, Selmun, 5.12.1983, MG (MHNG, MZ det.); 1 ♀, 2 juv., Selmun, 5.2.1983, PS (MZ, MZ det.); 2 ♂, 2 ♀, Mgiebah, 9.11.1985, leg. ? (MZ, MZ det.). Gozo: 1 ♂, Dwejra, 9.2.1984, MG (MHNG, MZ det.); 1 ♂, 1 ♀, Ramla, 15.2.1986, clay slopes, PS (DBUM, MZ det.); 1 ♂, Xlendi, 26.4.1984, MG (MZ, MZ det.).

General distribution. Sicily (Foddai *et al.*, 1995); also reported from Pantelleria (Zapparoli, 1995a).

Chorotype. W-Mediterranean (WME).

Ecological notes. Available records indicate that this species has a distribution limited to coastal areas where it occurs under trees, shrubs, in grass steppes, on clay slopes and under maritime vegetation.

Subgenus ***Monotarsobius*** Verhoeff, 1905

8. ***Lithobius (Monotarsobius) crassipes*** L. Koch, 1862

Material examined. Malta: 2 ♂, Ballut tal-Wardija, soil and leaf litter, Berlese extractor, 8.4.1984, PS & SS (MZ, MZ det.); 1 ♂, 1 ♀, Nadur, near Bingemma Gap, 30.12.1984, PS (MHNG, MZ det.); 1 ♀, Wied Qannotta, S.E. end, 11.12.1983, PS (DBUM, MZ det.); 1 ♂ juv., Wied l-Ghasel, Mosta, 26.1.1985, PS (DBUM, MZ det.); 1 ♂, Wied il-Faham, 27.2.1982, PS (MZ, MZ det.). Gozo: 2 ♂, 5 ♀, limits of Kercem, 14.2.1985, PS (MZ, MZ det.); 1 ♂, Ta' Cenc, 2.2.1985, PS & MG (MHNG, MZ det.); 1 ♂, 1 ♀ juv., Wied ic-Cawla, 9.4.1984, MG (MZ, MZ det.); 3 ♂, 1 ♀, Wied il-Mielah, 16.2.1985, PS (MZ, MZ det.).

General distribution. Scandinavia, United Kingdom, Ireland, Iberia, France, Netherlands, Germany, Switzerland, Poland, Czech Republic, Slovakia, Austria, Italy (incl. Sardinia and Sicily), Slovenia, Croatia, Bosnia Herzegovina, Montenegro, Serbia, Albania, FYR Macedonia, mainland and insular Greece (incl. Crete), Bulgaria, Romania, Russia, Turkey, Syria, Jordan, Central Asia, Algeria, Tunisia, Canary Is., Madeira; probably introduced in N. America (Brölemann, 1921, 1930, 1932; Eason, 1964, 1982, 1985; Foddai *et al.*, 1995; Kos, 1992; Matic *et al.*, 1967; Országh, 2001; Stoev, 1997, 2001; Tajovský, 2001; Wytwer, 1997; Zalesskaja, 1978; Zapparoli, 1991, 1999).

Chorotype. W-Palaearctic (WPA).

Ecological notes. Common and quite widespread; this species occurs in soil and leaf litter beneath trees and shrubs, especially in sheltered situations, such as maquis in the deeper *widien*.

SCOLOPENDROMORPHA Pocock, 1895

SCOLOPENDRIDAE Newport, 1844

Scolopendra Linné, 1758

9. ***Scolopendra cingulata*** Latreille, 1829

Scolopendra cingulata Latr.: Gulia, 1890: 41.
Scolopendra cingulata: Gulia, 1913: 554.
Scolopendra cingulata Latr.: Matic *et al.*, 1967: 197.
Scolopendra cingulata: Schembri, 1996: 120.

Material examined. Malta: 1, Wied Mejxu, under stones, 25.10.1970, EL (MZ det.); 1, Birkirkara, under stones, 5.11.1974, SS (MZ det.). Comino: 2, under stones, 23.03.1975, SS (MZ det.); 1, Santa Marija Bay, 26.9.1982, PS (MZ, MZ det.).

General distribution. Tunisia, Algeria, Morocco, Portugal, Spain, France, Italy, Slovenia, Croatia, Bosnia Herzegovina, Serbia, Montenegro, FYR Macedonia, Romania, Bulgaria, Albania, mainland and insular Greece, Turkey, Hungary, Ukraine, S. European Russia (Crimea, Caucasus), NW Iran, Syria, Lebanon, Palestine, Israel, Jordan, Egypt (Sinai), Cyrenaica; also in Sicily and Cyprus; absent in Balearic Is., Corsica, Sardinia and Crete (Attems, 1930; Brölemann, 1921, 1930, 1932; Foddai *et al.*, 1995; Kos, 1992; Lewis, 1985; Serra, 1983; Stoev, 1997; Zalesskaja & Schileyko, 1992; Zapparoli, 1991, 1999). Two records from Tadjikistan (Zalesskaja & Schileyko, 1992).

Chorotype. (Turano?)-Mediterranean (MED).

Remarks. Recorded from many localities on Malta, as well as from the islands of Comino and Gozo (Matic *et al.*, 1967); many more specimens were seen by one of us (PS) but were not collected.

Ecological notes. Widespread species on the Maltese Islands, occurring in a wide range of habitats including coastal garigue and clay slopes, *widien*, inland garigue and fields.

10. ***Scolopendra oraniensis*** Lucas, 1846

Scolopendra canidens oraniensis (Luc.) [sic]: Matic *et al.*, 1967: 197.

Material examined. Malta: 1, Attard, 5.3.1975, leg. ? (CT, AM det.); 1, Bahrija Valley, 6.4.1985, PS (MZ, MZ det.); 1, Ghadira, 4.3.1975, leg. ? (CT, AM det.); 1, Ghajn Tuffieha, clay slopes, 24.2.1985, SS (MZ, MZ det.); 1, Ghar Lapsi, 6.3.1975, DC (CT, AM det.); 1, Gnejna, 10.4.1982, JS (DBUM, MZ det.); 1, Il-Fawwara, Dingli cliffs, 9.4.1983, SP (MZ, MZ det.); 1, Salina, 5.5.1984, SS (MZ, MZ det.); 1, Mgiebah Bay, clay slopes, 8.4.1984, PS (MZ, MZ det.); 1, Mistra, 3.3.1975, DC (CT, AM det.); 1, Wardija, 2.3.1975, leg. ? (CT, AM det.); 1, Wied Bufula, 8.11.1986, leg. ? (MZ, MZ det.); 1, Wied Incita, 25.3.1984, PS & SS (DBUM, MZ det.); 1, Wied l-Ghasel, Mosta, garigue, under stones, 26.1.1985, PS (MZ, MZ det.); 1, Wied Znuber, 15.4.1984, PS (MHNG, MZ det.); 1, Xrobb l-Ghagin, 7.5.1984, MG (MHNG, MZ det.). Gozo: 1, Dwejra, 17.5.1984, SS (MHNG, MZ det.); 2, Hondoq ir-Rummien, 5.3.1984, SS (DBUM, MZ det.); 1, Wied il-Mielah, 9.4.1984, MG (MZ, MZ det.).

General distribution. Portugal, Spain (incl. Balearic Is.), S. France, Corsica, Central and S. Italy, Sardinia, Sicily, Malta. Records from Morocco and Algeria are also known (Würmli, 1980).

Chorotype. Western Mediterranean (WME).

Ecological notes. Common and widespread especially in coastal areas; it occurs in *widien*, garigue and on clay slopes.

CRYPTOPIDAE Kohlrausch, 1881

Cryptops Leach, 1815

11. ***Cryptops trisulcatus*** Brölemann, 1902

Cryptops trisulcatus Brol. [sic]: Matic *et al.*, 1967: 197.

Material examined. Malta: 1, Chadwick Lakes, 7.3.1975, DC (CT, AM det.); 1, Ghadira, 4.3.1975, DC (CT, AM det.). Gozo: 1, Dwejra, 9.11.1984, MG (MZ, MZ det.); 1, ibidem, 17.5.1984, SS (MZ, MZ det.). Comino: 1, central area, 26.9.1982, PS (MZ, MZ det.).

General distribution. Canary Is., Algeria, Portugal, Spain (incl. Balearic Is.), S. France (incl. Corsica), Italy (Apenninic), Sardinia, Sicily, Romania, insular Greece (Ionian Is., S. Sporades, Crete), SE. Turkey (Attems, 1930; Brölemann, 1921, 1930, 1932; Foddai *et al.*, 1995, 1996; Machado, 1952; Negrea & Matic, 1973; Stoev, 1997; Zapparoli, 1999).

Chorotype. Mediterranean (MED).

Ecological notes. Available records suggest that this species has a rather limited distribution and occurs mostly in coastal areas, but also in *widien* (Chadwick Lakes).

GEOPHILOMORPHA Leach, 1815
HIMANTARIIDAE Cook, 1895

Himantarium C. Koch, 1847

12. ***Himantarium gabrielis*** (Linnaeus, 1767)

Himantarium gabrielis: Schembri, 1996: 120.

Material examined. Malta: 1, Ballut ta' l-Imgiebah, 8.4.1984, SS (MZ, MZ det.); 1, Ballut tal-Wardija, 8.4.1984, PS (MHNG, MZ det.); 1, Borg in-Nadur, B'Bugia, 20.1.1985, PS (MZ, MZ det.); 1, Il-Maqluba, Qrendi, 7.12.1982, PS (MHNG, MZ det.); 3, Malta, 12.1972/1.1973, AV (BG, AM det.); 1, San Pawl tat-Targa, 3.1983, DJ (MZ, MZ det.); 1, San Pawl tat-Targa, garden, pitfall trap, 17.2.1985, DJ (MHNG, MZ det.); 1, Tà Hammud, Mtahleb, 18.2.1983, PS (MZ, MZ det.); 1, Tal-Qroqq, UOM, 16.4.1984, SA & LM (MHNG, MZ det.); 1, Wied Anglu, 16.12.1984, PS (DBUM, MZ det.); 1, Wied Bufula, 8.11.1986, leg. ? (MZ, MZ det.).

General distribution. Tunisia, Algeria, Morocco, S. France (incl. Corsica), Italy (incl. Sardinia and Sicily), Slovenia, Croatia, Bosnia Herzegovina, Montenegro, FYR Macedonia, Albania, mainland and insular Greece (excl. Crete), S. Romania, Bulgaria, W. Turkey; introduced in Madagascar (Attems, 1929; Brölemann, 1921, 1930, 1932; Foddai *et al.*, 1995; Kos, 1992; Minelli *et al.*, 1984; Stoev, 1997, 2001; Zapparoli, 1999). Reported from Portugal by Attems (1929) but not by Machado (1952); also occurring in Central Europe (Brölemann, 1930).

Chorotype. Mediterranean (MED).

Ecological notes. Common and widespread species on the Maltese Islands, occurring in a wide range of habitats that include leaf litter under trees and shrubs, soil in garigue, *widien* and gardens.

Stigmatogaster Latzel, 1880

13. ***Stigmatogaster gracilis*** (Meinert, 1870)

Material examined. Malta: 2, 12.1972/1.1973, AV (BG, AM det.); 2, Malta, 8.1878, EG (FI, AM det.).

General distribution. Tunisia, Algeria, Balearic Is., S. France (incl. Corsica), Italy (incl. Sardinia and Sicily), Croatia, Montenegro, Albania, mainland and insular

Greece (excl. Crete) (Brölemann, 1921, 1930, 1932; Foddai *et al.*, 1995; Kos, 1992; Negrea & Matic, 1973; Stoev, 1997).

Chorotype. Mediterranean (MED).

Ecological notes. No data available.

Bothriogaster Sseliwanoff, 1879

14. ***Bothriogaster signata*** (Kessler, 1874)

Bothriogaster signata Att. [sic]: Matic *et al.*, 1967: 196.

Material examined. Malta: 3, Tal-Qroqq, UOM, *Acacia* stand, under stones, 27.3.1984, SA & LM (MZ, MZ det.). Gozo: 2, Dwejra, 17.5.1984, SS (DBUM, MZ det.); 1, Qala, 17.5.1985, MG (MHNG, MZ det.).

General distribution. FYR Macedonia, Albania, Bulgaria, mainland and insular Greece (incl. Crete), Turkey, Cyprus, Syria, Palestine, Israel, Egypt, Libya (Cyrenaica, Tripolitania), Tunisia, Caucasus, Iran, Iraq, Jordan, Saudi Arabia, Turkestan, Usbekistan (Stoev, 2000; Zapparoli, 1991).

Chorotype. Turano-Mediterranean (TUM).

Remarks. Previously recorded from several localities on the island of Malta, as well as from Comino and Gozo (Matic *et al.*, 1967).

Ecological notes. Only few records are available but the species seems to prefer soil under vegetation in rather arid situations.

DIGNATHODONTIDAE Cook, 1895

Dignathodon Meinert, 1870

15. ***Dignathodon microcephalus*** (Lucas, 1846)

Dignathodon microcephalum [sic] (Luc.): Matic *et al.*, 1967: 197.

Material examined. Malta: 2, Targa Gap, 2.10.1982, PS & SS (MZ, MZ det.).

General distribution. Morocco, Algeria, Tunisia, Portugal, Spain (incl. Balearic Is.), S. France (incl. Corsica), Italy (incl. Sardinia and Sicily), Austria, Croatia, Bosnia Herzegovina, Serbia, Montenegro, Czech Republic, Slovakia, Romania, Bulgaria, Albania, mainland and insular Greece (incl. Crete), Near and Middle East, Crimea; also recorded from Luxembourg, where it was probably introduced (Attems, 1929; Brölemann, 1921, 1930, 1932; Dobroruka, 1956; Foddai *et al.*, 1995, 1996; Kos, 1992; Machado, 1952; Matic, 1972; Negrea & Matic, 1973; Országh, 2001; Stoev, 1997; Tajovský, 2001; Zapparoli, 1991, 1995b, 1999).

Chorotype. Mediterranean (MED).

Remarks. This species has been previously recorded from Gozo (Matic *et al.*, 1967).

Ecological notes. No data available.

Henia C.L. Koch, 1847

Subgenus ***Meinertia*** Bollmann, 1893

16. ***Henia (Meinertia) bicarinata*** (Meinert, 1870)

Material examined. Malta: 1, Bahrija Valley, 25.3.1984, PS & SS (MHNG, MZ det.); 1, Buskett, soil, leaf litter, Berlese extractor, 30.4.1984, PS (MZ, MZ det.); 1, Chadwick Lakes, 7.3.1975, DC (AM, AM det.); 1, Fomm ir-Rih (cobble beach), October 2001, MG (AM, AM det.); 1, Fomm ir-Rih (cobble beach, on wrack), October 2001, MG (AM, AM det.); 1, Wied l-Ghasel, near Mosta Fort, 16.3.1985, PS (MHNG, MZ det.); 1, Manoel Island, 3.4.1984, MG (MZ, MZ det.); 2, Mgiebah, 17.3.1985, leg. ? (DBUM, MZ det.). Gozo: 1, Dwejra, 17.5.1984, SS (MZ, MZ det.); 1, Fort Chambray slopes, 3.2.1985, PS & MG (MHNG, MZ det.); 1, Ta' Cenc, 2.2.1985, PS & MG (DBUM, MZ det.); 1, Tà Cenc, 11.3.1975, DC (AM, AM det.).

General distribution. Macaronesia, Maghreb, Iberia, France (incl. Corsica), Italy (peninsular regions, Sardinia and Sicily), Croatia, Bosnia Herzegovina, Slovakia, Hungary, Bulgaria, mainland and insular Greece (incl. Crete), Turkey, Caucasus (Minelli, 1982; Országh, 2001).

Chorotype. Mediterranean (MED).

Ecological notes. A more or less widespread species that occurs in coastal areas in stranded *Posidonia* debris on beaches, on coastal clay slopes and amongst coastal vegetation, but also inland in *widien*, in soil and leaf litter under trees and shrubs, and under stones in garigue.

Subgenus ***Chaetechelyne*** Meinert, 1870

17. ***Henia (Chaetechelyne) vesuviana*** (Newport, 1845)

Material examined. Malta: 4, Nadur, near Bingemma Gap, 30.12.1984, PS (MZ, MZ det.).

General distribution. Tunisia (?), Spain (?), S. France, Corsica (?), Switzerland, Italy (incl. Sardinia and Sicily), Croatia, Slovenia, SW. Romania (Minelli, 1982; Kos, 1992; Stoev, 1997).

Chorotype. Western Mediterranean (WME).

Ecological notes. The only locality where this species has been collected on the Maltese Islands has mainly a garigue and low maquis vegetation.

SCHENDYLIDAE Verhoeff, 1908

Schendyla Bergsoe & Meinert, 1866

18. ***Schendyla*** sp. n.

Material examined. Malta: 7, Ballut ta' l-Imgiebah, soil leaf litter, 8.4.1984, PS (MZ, MZ det.); 1, Nadur, near Bingemma Gap, 30.12.1984, PS (MZ, MZ det.); 1 ♀, Mtahleb, 6.3.1975, DC (AM, AM det.).

Remarks. This new taxon will be described in the context of a revision of the Mediterranean *Schendyla* species.

Ecological notes. The specimens were found in soil and leaf litter under trees (*Quercus ilex* at Ballut ta' l-Imgiebah) and in low maquis (*Ceratonia siliqua* at Bingemma Gap).

GEOPHILIDAE Cook, 1895

Pachymerium C.L. Koch, 1847

19. ***Pachymerium ferrugineum*** (C.L. Koch, 1835)

Pachymerium ferrugineum (C. Koch) [sic]: Matic *et al.*, 1967: 197.

Material examined. Malta: 1, Ghadira, near reserve, 21.4.1984, PS (MHNG, MZ det.); 1, Girgenti, 18.10.1986, PS (MZ, MZ det.); 1, Malta, 8.10.1878, EG & GT (FI, AM det.); 1, Salina, 5.5.1984, SS (DBUM, MZ det.); 1, ibidem, 22.1.1985, MG (MZ, MZ det.); 2, San Pawl tat-Targa, garden, pitfall trap, 17.2.1985, DJ (MZ, MZ det.); 4, Tal-Qroqq, UOM, 5.4.1984, SA & LM (MZ, MZ det.); 1, Wied Bufula, 8.11.1986, leg. ? (DBUM, MZ det.); 1, Wied l-Ghasel, Mosta, 16.12.1983, PS (MHNG, MZ det.). Gozo: 1, Fort Chambray slopes, 3.2.1985, PS & MG (MHNG, MZ det.); 1, Qala, 17.5.1985, MG (MZ, MZ det.); 1, Ramla Dunes, 16.5.1984, SS (MZ, MZ det.); 1, Ramla, 4.3.1984, SS (MHNG, MZ det.); 1, ibidem, 2.2.1985, PS (MHNG, MZ det.); 2, ibidem, 15.2.1985, PS (MZ, MZ det.); 1, Ta' Cenc, 2.2.1985, PS & MG (MZ, MZ det.), 1, Xatt l-Ahmar, 4.5.2002, AD (AM, AM det.).

General distribution. Macaronesia (Azores, Madeira, Canary Is.), N. Africa (Tunisia; Algeria incl. Mediterranean coasts and Hoggar, Central Sahara; Morocco; Libya: Cyrenaica, Tripolitania), Portugal, Spain (incl. Balearic Is.), France (incl. Corsica), Italy (incl. Sardinia and Sicily), Austria, former Czechoslovakia, Poland, Latvia, Hungary, Slovenia, Croatia, Bosnia Herzegovina, FYR Macedonia, Albania, Bulgaria, Greece, Romania, European Russia, Turkey, Cyprus, Palestine, Iran, Caucasus, Turkestan; recorded from Scandinavia (Finland, Norway), United Kingdom, Netherlands; also present in Alaska and Pribilof Is.; introduced to Japan, Hawaii Is., N. America, Juán Fernández Is., Mexico, Easter I. (Barber, 1985; Eason, 1964; Meidell, 1977; Palmén & Rantala, 1954; Stoev, 2000).

Chorotype. W-Palearctic (WPA).

Ecological notes. Widespread species on the Maltese Islands, occurring in a wide range of habitats including coastal garigue and clay slopes, sandy beaches, *widien*, inland garigue and gardens.

Clinopodes C.L. Koch, 1847

20. ***Clinopodes flavidus*** (C.L. Koch, 1847)

Material examined. Malta: 1, Buskett, 30.12.1978, B/2, JS (MZ, MZ det.).

General distribution. Poland, Czech Republic, Slovakia, Austria, Italy (incl. Sicily, excl. Sardinia), Slovenia, Croatia, Bosnia Herzegovina, Serbia, Montenegro, FYR Macedonia, Albania, Romania, Bulgaria, mainland and insular Greece (incl. Crete), Turkey, Cyprus, Palestine, Syria, European Russia, Crimea, Caucasus, Turkestan (Attems, 1929, 1949; Foddai *et al.*, 1995; Kos, 1992; Országh, 2001; Stoev, 1997, 2001; Wytwer, 1997; Tajovský, 2001; Zapparoli, 1995b, 1999).

Chorotype. Turano-European (TUE).

Ecological notes. The only locality from where this species was collected in the Maltese Islands is a semi-natural woodland.

Tuoba Chamberlin, 1920

21. ***Tuoba poseidonis*** (Verhoeff, 1901)

Material examined. Malta: 4, Golden Bay, 19.11.2001, AD (AM, AM det.); 2, ibidem, 19.11.2001, AD (AM, AM det.). Gozo: 1, Xatt L-Ahmar, 1.5.2002, SS (AM, AM det.); 1, Xatt L-Ahmar, 1.5.2002, ST (AM, AM det.); 1, Xatt L-Ahmar, 1.5.2002, ST (AM, AM det.); 25, Xatt L-Ahmar, 4.5.2002, AD (AM, AM det.).

General distribution. Coasts of S. France (incl. Corsica), Central and S. Italy (incl. Sardinia and Sicily), Slovenia, mainland and insular Greece, Jordan (Dead Sea),

Egypt (Red Sea), Somalia (Indian Ocean) (Attems, 1929; Brölemann, 1930; Foddai *et al.*, 1995, 1996; Stoev, 1997; Zapparoli, 1990, 1991).

Chorotype. Mediterranean (MED).

Ecological notes. Found under stranded *Posidonia* debris on sandy beaches.

FAUNISTIC AND ZOOGEOGRAPHIC REMARKS

On the basis of the faunistic data available so far, twenty-one species of centipedes are here listed from the Maltese Archipelago, i.e. 1 Scutigeromorpha, 7 Lithobiomorpha, 3 Scolopendromorpha, and 10 Geophilomorpha. Of these, 20 have been confirmed to occur on the island of Malta, 11 species on Gozo and three on Comino (Tab. I).

The faunistic data presented in this study are significant, since they are the result of systematic collecting made in different seasons over a number of years and employing different collecting methods, but it is likely that the real number of species present in the Maltese Islands is slightly higher than reported here.

One possible addition to the list may be *Cryptops punicus* Silvestri, 1896, a thermoxerophilous species widespread in the W-Mediterranean basin and known from the Tuscany Is. (Montecristo), Sardinia, Ustica, Sicily, Pantelleria, Lampedusa and Tunisia (cf. Zapparoli, 1995a).

Other species that can be expected to occur in the Maltese Archipelago are *Hydroschendyla submarina* (Grube, 1872) and *Nannophilus eximius* (Meinert, 1870). *H. submarina* is a halophilous species, with a Mediterranean-Atlantic distribution for which some records are known for the Tyrrhenian (Tuscany Is., NE. Sardinia, Campania, Linosa: Zapparoli, 1995a) and Aegean areas (Zapparoli, 2002). *N. eximius* is a W-Mediterranean element, recorded from Macaronesia (Madeira, Canary Is.), N. Africa (Algeria, Tunisia) and S. Italy (Sicily, Calabria, Basilicata, Puglia); it is also present in the circum-Sicilian micro-insular systems (Egadi Is., Eolian Is., Pelagian Is.).

Another species that may also be present is *Geophilus insculptus* Attems, 1895, a rather euryoecious geophilomorph widely distributed in Europe and also present in N-Africa. In the Tyrrhenian islands this species is known from many localities on Sardinia and Sicily and it has also been recorded from the Tuscany Is. (Giannutri, Giglio), Campane Is. (Ischia), Egadi Is., Eolian Is., Pantelleria and Lampedusa (Zapparoli, 1995a).

With respect to our knowledge of the centipede fauna of individual Maltese islands, data are most complete for Malta, while the number of species that occur on Gozo and Comino is very likely an underestimate. Some widespread Mediterranean elements (e.g.: *Scutigera coleoptrata*, *Eupolybothrus nudicornis*, *Lithobius crassipes*, *Scolopendra oraniensis*, *Pachymerium ferrugineum, Tuoba poseidonis*) have not been recorded from Gozo and Comino, probably due to inadequate collecting on these islands.

When compared to the faunas of the Central Mediterranean mainland and insular areas (Sicily, Eolian Is., Ustica, Egadi Is., Pantelleria, Linosa, Lampedusa and Tunisia), the centipede fauna of the Maltese Islands represents about a third of that

known to date for this region as a whole (Tab. II). However, faunistic knowledge of these areas is still incomplete. Best known are the Sicilian (including the small surrounding islands) and Maltese faunas, both of which have been the object of recent and repeated studies. Just under fifty species have been recorded from these localities as a whole (Foddai *et al.*, 1995, 1996). In contrast, knowledge of the centipedes of N. Africa, and particularly Tunisia, is much less complete and in need of updating. Some forty species have been recorded from this region to date, at least five of which are doubtful (Brölemann, 1921, 1932; Zapparoli, unpublished records).

Leaving out *L. peregrinus*, which is probably introduced, and *L. forficatus*, the presence of which on Malta is doubtful, almost 70% of the centipedes of the Maltese Islands are represented by species with a high dispersal ability. They are widespread in the Mediterranean area and are present in most of the aforementioned insular and mainland localities in the Central Mediterranean (Tabs II, III).

Apart from *Schendyla* n. sp., the remaining Maltese centipede species are more or less widely distributed but absent from N. Africa (*Lithobius lapidicola*, *L. trinacrius*, *Scolopendra oraniensis*, *Clinopodes flavidus*) or from southern Italy (*Bothriogaster signata*). For *Bothriogaster signata*, however, the possibility that its presence on Malta is a result of anthropic introduction cannot be excluded.

From a zoogeographic point of view, an analysis of the chorotypes represented in the study area (Tab. III) shows the Maltese centipede fauna to have a strong "Mediterranean" character, with this chorological element approaching 67%. This agrees well with the results of studies on the centipede fauna of other insular systems of the Sicily Channel (Pantelleria, Linosa, Lampedusa) (Zapparoli, 1995a). Species with a wide distribution in the Holarctic Region and in Europe are poorly represented (22% and 11% respectively).

Our studies on the centipede fauna of the Maltese Islands lead us to conclude that the composition of the fauna of these islands is affected mainly by ecological factors (the availability of suitable habitats) and by colonization-extinction events, rather than by paleogeographic and paleoclimatic factors. This is in accordance with the conclusions of previous studies on the centipedes of the W-Mediterranean micro-insular systems (Foddai *et al.*, 1996).

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REFERENCES

ALEXANDER, D. 1988. A review of the physical geography of Malta and its significance for tectonic geomorphology. *Quaternary Science Reviews* 7: 41-53.

ATTEMS, C.G. 1907. Myriopoden aus der Krim und dem Kaukasus von Dr. A. Stuxberg gesammelt. *Archiv för Zoologi* 25: 1-16 + 2 pls.

ATTEMS, C.G. 1927. Myriopoden aus dem nördlichen und östlichen Spanien, gesammelt von Dr. F. Hass in den Jahren 1914-1919. *Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft* 39: 235-289.

ATTEMS, C.G. 1929. Geophilomorpha. Das Tierreich, 52. *W. de Gruyter & Co., Berlin & Leipzig*, XXIII + 388 pp.

ATTEMS, C.G. 1930. Scolopendromorpha. Das Tierreich, 54. *W. de Gruyter & Co., Berlin & Leipzig,* XIX + 308 pp.

ATTEMS, C.G. 1949. Die Myriopodenfauna der Ostalpen. *Sitzungsberichte der Österreichischen Akademie der Wissenschaften, Mathematisch-naturwissenschaftliche Klasse* 158: 79-154.

ATTEMS, C.G. 1952. Myriopoden der Forschungsreise Dr. H. Franz in Spanien 1951 nebst Übersicht über die gesamte Iberische Myriopodenfauna. *Eos, Revista española de entomologia* 28: 323-366.

AXIAK, V., GAUCI, V., MALLIA, A., MALLIA, E.A., SCHEMBRI, P.J., VELLA, A.J. & VELLA, L. [compilers]. 2002. State of the environment report for Malta 2002. *Santa Venera, Malta: Ministry for Home Affairs and the Environment*, IV + 581 pp.

BARBER, A.D. 1985. Distribution patterns in British Chilopoda. *Bijdragen tot de Dierkunde* 55: 16-24.

BOWEN JONES, H., DEWDNEY, J.C. & FISHER, W.B. (eds). 1961. Malta, a background for development. *Durham University Press, Durham*, 356 pp.

BRÖLEMANN, H.W. 1921. Liste des Myriapodes signalés dans le Nord de l'Afrique. *Bulletin de la Société des Sciences Naturelles et Physiques du Maroc* 1: 99-110.

BRÖLEMANN, H.W. 1930. Elements d'une Faune des Myriapodes de France. Chilopodes. *Lechevalier, Paris,* 25: XX + 405 pp.

BRÖLEMANN, H.W. 1932. Tableaux de détermination des Chilopodes signalés en Afrique du Nord. *Bulletin de la Société d'Histoire Naturelle d'Algier* 23: 31-64.

CHETCUTI, D., BUHAGIAR, A., SCHEMBRI, P.J. & VENTURA, F. 1992. The climate of the Maltese Islands: a review. *Malta University Press, Msida, Malta,* VI + 108 pp.

DOBRORUKA, L. 1956. *Dignathodon microcephalum* Luc. (Chilopoda, Geophilomorpha) v ČSR. *Ochrana Prírody* 11: 174-175 (in Czech).

EASON, E.H. 1964. Centipedes of the British Isles. *F. Warne, London,* X + 294 pp.

EASON, E.H. 1970. The Chilopoda and Diplopoda of Iceland. *Entomologica Scandinavica* 1: 47-54.

EASON, E.H. 1973. The type specimens and identity of the species described in the genus *Lithobius* by R.I. Pocock from 1890 to 1901 (Chilopoda, Lithobiomorpha). *Bulletin of the British Museum (Natural History)* 25 (2): 39-83.

EASON, E.H. 1982. A review of the north-west European species of Lithobiomorpha with a revised key to their identification. *Zoological Journal of the Linnean Society* 74: 9-33.

EASON, E.H. 1985. The Lithobiomorpha (Chilopoda) of the Macaronesian islands. *Entomologica Scandinavica* 15 (1984): 387-400.

EASON, E.H. 1996. Lithobiomorpha from Sakhalin Island, the Kamchatka Peninsula and Kurile Islands (Chilopoda). *Arthropoda Selecta* 5: 117-123.

ENGHOFF, H. 1983. Oversigt over skolopendrenes udbredelse i Danmark (Chilopoda). *Entomologiske Meddelelser* 50: 1-6.

FODDAI, D., MINELLI, A., SCHELLER, U. & ZAPPAROLI, M. 1995. Chilopoda, Diplopoda, Pauropoda, Symphyla. *In*: MINELLI, A., RUFFO, S. & LA POSTA, S. (eds). Checklist delle specie della fauna italiana. 32. *Calderini, Bologna,* 35 pp.

FODDAI, D., MINELLI, A. & ZAPPAROLI, M. 1996. I Chilopodi delle isole circumsarde nel contesto del popolamento insulare dell'area tirrenica s.l. *Biogeographia, Lavori della Società italiana di Biogeografia* 18 (1995): 357-376.

GULIA, G. 1890. Indice dei Miriapodi maltesi. *Il Naturalista Maltese* 1 (5): 41-42.

GULIA, G. 1913. Uno sguardo alla zoologia delle "Isole maltesi". *IXe Congrès International de Zoologie, Monaco*, 4: 545-555.

HASLAM, S.M., SELL, P.D. & WOLSELEY, P.A. 1977. A flora of the Maltese Islands. *Malta University Press, Msida, Malta,* LXXI + 560 pp.

KOS, I. 1992. A review of the taxonomy, geographical distribution and ecology of the centipedes of Yugoslavia. *Berichte des Naturwissenschaftlich-Medizinischen Vereins in Innsbruck, Supplementum* 10: 353-360.

LANFRANCO, E. 1995. The vegetation of the Maltese Islands (pp. 27-29). *In*: GIUSTI, F., MANGANELLI, G. & SCHEMBRI, P.J., The non-marine molluscs of the Maltese Islands. *Museo Regionale di Scienze Naturali, Torino; Monografie* 15, 607 pp.

LEWIS, J.G.E. 1985. Possible species isolation mechanisms in some scolopendrid centipedes (Chilopoda: Scolopendridae). *Bijdragen tot de Dierkunde* 55: 125-130.

MACHADO, A. 1952. Miriápodes de Portugal. Premiera parte: Quilópodes. *Publicações do Instituto de Zoologia "Dr. A. Nobre", Faculdade de Ciências do Porto* 43: 1-171.

MATIC, Z. 1972. Clasa Chilopoda, Subclasa Epimorpha. Fauna Republicii Socialiste Romania. *Editura Academiei Republicii Socialiste Romania, Bucureşti,* 6, 2, 220 pp.

MATIC, Z., DARABANTU, C. & CLICHICI, M. 1967. Contributo alla conoscenza dei Chilopodi di Spagna e di Malta. *Bollettino delle Sedute dell'Accademia Gioenia di Scienze naturali* (4) 9: 175-199.

MEIDELL, B.A. 1977. Norwegian myriapods: some zoogeographical remarks (pp. 195-201). *In*: Camatini, M. (ed.). Myriapod biology. *Academic Press, London,* 456 pp.

MINELLI, A. 1982. Contributo alla revisione dei Chilopodi Geofilomorfi finora riferiti ai generi *Henia* e *Chaetechelyne* (Chilopoda Geophilomorpha). *Memorie della Società Entomologica Italiana* 60 (1981): 253-268.

MINELLI, A., PASQUAL, C. & ETONTI, G. 1984. I Chilopodi Geofilomorfi del gen. *Himantarium* C.L. Koch con particolare riferimento alle popolazioni italiane. *Società Veneziana di Scienze Naturali - Lavori* 9: 73-84.

NEGREA, S. & MATIC, Z. 1973. Chilopodes cavernicoles et endogés de l'Île de Majorque. Mission Biospéologique Costantin Dragan (1970-1971). *Boletin de la Sociedad de Historia Natural de Baleares* 18: 21-39.

ORSZÁGH, I. 2001. Centipedes (Chilopoda) of the Slovak Republic. *Myriapodologica Czecho-Slovaka* 1: 49-57.

PALMÉN, E. & RANTALA, M. 1954. On the life history and ecology of *Pachymerium ferrugineum*. *Annales Zoologicae Societatis Zoologicae Botanicae Fennicae "Vanamo"* 16: 1-44.

PEDLEY, H.M., HOUSE, M.R. & WAUGH, B. 1976. The geology of Malta and Gozo. *Proceedings of the Geological Association* 87: 325-341.

SCHEMBRI, P.J. 1993. Physical geography and ecology of the Maltese Islands: a brief overview (pp. 27-39). *In*: BUSUTTIL, S., LERIN, F. & MIZZI, L. (eds). Malta: food, agriculture, fisheries and the environment. *CIHEAM, Options Méditerranéennes ser. B: Études et Recherches* 7, *Paris, France*, 192 pp.

SCHEMBRI, P.J. 1996. Myriapods (pp. 118-120). *In*: SULTANA, J. & FALZON V. (eds). Wildlife of the Maltese Islands. *Environment Protection Department, Floriana, Malta*, 336 pp.

SCHEMBRI, P.J. 1997. The Maltese Islands: climate, vegetation and landscape. *GeoJournal* 41: 115-125.

SCHEMBRI, P.J., BALDACCHINO, A.E., CAMILLERI, A., MALLIA, A., RIZZO, Y., SCHEMBRI, T., STEVENS, D.T. & TANTI, C.M. 1999. State of the environment report for Malta 1998: Living resources, fisheries and agriculture (pp. 109-283). *In*: AXIAK, V., GAUCI, V., MALLIA, A., MALLIA, E.A., SCHEMBRI, P.J. & VELLA, A.J. [compilers]. State of the environment report for Malta 1998. *Ministry for the Environment, Environment Protection Department; Floriana, Malta*, 448 pp.

SCHEMBRI, P.J. & LANFRANCO, E. 1993. Development and the natural environment in the Maltese Islands (pp. 247-266). *In*: LOCKHART, D.G., DRAKAKIS-SMITH, D. & SCHEMBRI, J. (eds). The development process in small island states. *Routledge, London & New York*, XV + 275 pp.

SERRA, A. 1983. Els Scolopendrinae i els Theatopsinae (Chilopoda Scolopendromorpha) de la Peninsula Iberica. *Butlletí de la Institució Catalana d'Història Natural* 49: 77-83.

STOEV, P. 1997. A check-list of the centipedes of the Balkan peninsula with some taxonomic notes and a complete bibliography (Chilopoda). *Entomologica Scandinavica, Supplement* 51: 87-105.

STOEV, P. 2000. On the centipedes (Chilopoda) of Albania, 2. *Arthropoda Selecta* 9: 199-206.

STOEV, P. 2001. On the centipedes (Chilopoda) of the Republic of Macedonia. *Historia naturalis bulgarica* 13: 93-107.

STOEV, P. 2002. A catalogue and key to the centipedes (Chilopoda) of Bulgaria. *Pensoft, Sofia-Moscow, Series Faunistica*, 25, 103 pp.

TAJOVSKÝ, K. 2001. Centipedes (Chilopoda) of the Czech Republic. *Myriapodologica Czecho-Slovaka* 1: 39-48.

VIGNA TAGLIANTI, A., AUDISIO, P.A., BELFIORE, C., BIONDI, M., BOLOGNA, M.A., CARPANETO, G.M., DE BIASE, A., DE FELICI, S., PIATTELLA, E., RACHELI, T., ZAPPAROLI, M. & ZOIA, S. 1992. Riflessioni di gruppo sui corotipi fondamentali della fauna W-paleartica ed in particolare italiana. *Biogeographia, Lavori della Società Italiana di Biogeografia* 16: 159-179.

VIGNA TAGLIANTI, A., AUDISIO, P.A., BIONDI, M., BOLOGNA, M.A., CARPANETO, G.M., DE BIASE, A., FATTORINI, S., PIATTELLA, E., SINDACO, R., VENCHI, A. & ZAPPAROLI, M. 1999. A proposal for a chorotype classification of the Near East fauna, in the framework of the Western Palearctic region. *Biogeographia, Lavori della Società Italiana di Biogeografia* 20: 31-59.

VOSSMERBÄUMER, H. 1972. Malta, ein Beitrag zur Geologie und Geomorphologie des Zentralmediterranen Raumes. *Würzburger Geographische Arbeiten* 38: 1-213.

WÜRMLI, M. 1973. Zur Systematik der Scutigeriden Europas und Kleinasiens (Chilopoda: Scutigeromorpha). *Annalen des Naturhistorischen Museums in Wien* 77: 399-408.

WÜRMLI, M. 1977. Zur Systematik der Gattung *Scutigera* (Chilopoda: Scutigeridae). *Abhandlungen und Verhandlungen des Naturwissenschaftlichen Vereins in Hamburg, N. F.* 20: 123-131.

WÜRMLI, M. 1980. Statistische Untersuchungen zur Systematik und post-embryonalen Entwicklung der *Scolopendra canidens*-Gruppe (Chilopoda: Scolopendromorpha: Scolopendridae). *Sitzungberichte der Oesterreichischen Akademie der Wissenschaften, Mathematisch-Naturwissenschaftliche Klasse, Abt. 1, Wien* 189: 315-353.

WYTWER, J. 1997. Chilopoda (pp. 265-257). *In*: RAZOWSKI, J. (ed.). Checklist of animals of Poland. *Wydawnictwa Instytutu Systematyki i Ewolucji Zwierza PAN, Kraków*, 4, 303 pp.

ZALESSKAJA, N.T. 1978. Identification book of the lithobiomorph centipedes of the USSR (Chilopoda, Lithobiomorpha). *Nauka Publishing, Moscow*, 211 pp. (in Russian).

ZALESSKAJA, N.T. & SCHILEYKO, A.A. 1992. The distribution of Scolopendromorpha in the USSR (Chilopoda). *Berichte des Naturwissenschaftlich-Medizinischen Vereins in Innsbruck, Supplementum* 10: 367-372.

ZAPPAROLI, M. 1981. Problemi sistematici e note geonemiche su alcune specie di Chilopodi della fauna del Marocco (Chilopoda). *Bollettino dell'Assocciazione Romana di Entomologia* 36: 1-11.

ZAPPAROLI, M. 1984. Osservazioni su alcune specie di Chilopodi Litobiomorfi del bacino Mediterraneo occidentale (Chilopoda, Lithobiomorpha). *Bollettino dell'Associazione Romana di Entomologia* 39: 1-9.

ZAPPAROLI, M. 1990. Note sui Chilopodi della Somalia. *Biogeographia, Lavori della Società Italiana di Biogeografia, Nuova Serie* 14: 125-147.

ZAPPAROLI, M. 1991. Note su alcune specie di Chilopodi della regione palestinese. *Fragmenta Entomologica* 22: 15-33.

ZAPPAROLI, M. 1992. Note su tassonomia, corologia ed ecologia di *Lithobius peregrinus* Latzel, 1880 (Chilopoda, Lithobiomorpha). *Annalen des Naturhistorischen Museums in Wien* 93: 161-179.

ZAPPAROLI, M. 1995a. Chilopoda (pp. 115-140). *In*: MASSA, B. (ed.). Arthropoda di Lampedusa, Linosa e Pantelleria (Canale di Sicilia, Mar Mediterraneo) (Chilopoda). *Naturalista Siciliano* 19 (Suppl.): XII + 909 pp.

ZAPPAROLI, M. 1995b. Geophilomorpha from Israel (pp. 41-46). *In*: NITZU, E. (ed.). Soil Fauna of Israel, 1. *Ed. Academia Romane, Bucuresti*, 155 pp.

ZAPPAROLI, M. 1999. The present knowledge on the centipede fauna of Anatolia (Chilopoda). *Biogeographia, Lavori della Società Italiana di Biogeografia* 20: 105-177.

ZAPPAROLI, M. 2002. A catalogue of the centipedes of Greece (Chilopoda). *Fragmenta Entomologica* 34: 1-146.

TAB. I - Distribution of the centipedes recorded from the main islands of the Maltese Archipelago. Symbols: + = present; - = absent; ? = doubtful record; * = introduced or probably introduced species. Only confirmed species are considered in the total.

	Malta	Gozo	Comino
Scutigera coleoptrata (Linné, 1758)	+	-	-
Eupolybothrus (Allopolybothrus) nudicornis (Gervais, 1837)	+	+	-
Lithobius (Lithobius) castaneus Newport, 1844	+	-	-
Lithobius (Lithobius) forficatus (Linné, 1758)	?	-	-
Lithobius (Lithobius) lapidicola Meinert, 1872	+	-	-
Lithobius (Lithobius) peregrinus Latzel, 1880	*	-	-
Lithobius (Lithobius) trinacrius Verhoeff, 1925	+	+	-
Lithobius (Monotarsobius) crassipes L. Koch, 1862	+	+	-
Scolopendra cingulata Latreille, 1829	+	+	+
Scolopendra oraniensis Lucas, 1846	+	+	-
Cryptops trisulcatus Brölemann, 1902	+	+	+
Himantarium gabrielis (Linné, 1767)	+	-	-
Stigmatogaster gracilis (Meinert, 1870)	+	-	-
Bothriogaster signata (Kessler, 1874)	*	*	*
Dignathodon microcephalus (Lucas, 1846)	+	+	-
Henia (Meinertia) bicarinata (Meinert, 1870)	+	+	-
Henia (Chaetechelyne) vesuviana (Newport, 1845)	+	-	-
Schendyla sp. n.	+	-	-
Pachymerium ferrugineum (C.L. Koch, 1835)	+	+	-
Clinopodes flavidus C.L. Koch, 1847	+	-	-
Tuoba poseidonis (Verhoeff, 1901)	+	+	-
Total	20	11	3

Tab. II. Distribution of the centipedes recorded from Sicily and related micro-insular systems, from the Maltese Islands and from Tunisia. Symbols: + = present; - = absent; ? = doubtful record; * = introduced or probably introduced species. SIC = Sicily (main island); EOL = Eolian Is.; UST = Ustica; EGA = Egadi Is.; PAN = Pantelleria; MAL = Maltese Is.; LIN = Linosa; LAM = Lampedusa; TUN = Tunisia. Only confirmed species are considered in the total.

	SIC	EOL	UST	EGA	PAN	MAL	LIN	LAM	TUN
Scutigera coleoptrata (Linné, 1758)	+	+	+	+	+	+	+	+	+
Eupolybothrus (Eupolybothrus) fasciatus (Newport, 1845)	-	*	-	-	-	-	-	-	-
Eupolybothrus (Allopolybothrus) nudicornis (Gervais, 1837)	+	+	+	+	+	+	-	+	+
Lithobius (Lithobius) atrifrons Slivestri, 1896	-	-	-	-	-	-	-	-	+
Lithobius (Lithobius) borealis Meinert, 1872	+	-	-	-	-	-	-	-	-
Lithobius (Lithobius) castaneus Newport, 1844	+	+	-	+	+	+	-	+	+
Lithobius (Lithobius) cryptobius Silvestri, 1897	+	-	-	-	-	-	-	-	-
Lithobius (Lithobius) dahlii Verhoeff, 1925	+	-	-	-	-	-	-	-	-
Lithobius (Lithobius) erythrocephalus C.L. Koch, 1847	+	-	-	+	-	-	-	-	-
Lithobius (Lithobius) forficatus (Linné, 1758)	-	*	-	-	-	?	-	*	*
Lithobius (Lithobius) hispanicus Meinert, 1872	-	-	-	-	-	-	-	-	+
Lithobius (Lithobius) inermis L. Koch, 1856	+	-	-	-	-	-	-	-	-
Lithobius (Lithobius) lapidicola Meinert, 1872	+	-	-	-	+	+	+	-	-
Lithobius (Lithobius) lusitanus Verhoeff, 1925	-	-	-	-	-	-	-	-	+
Lithobius (Lithobius) peregrinus Latzel, 1880	-	-	-	-	-	*	-	-	-
Lithobius (Lithobius) romanus Meinert, 1872	-	*	-	-	-	-	-	-	-
Lithobius (Lithobius) tricuspis Meinert, 1872	+	+	-	-	-	-	-	-	-
Lithobius (Lithobius) trinacrius Verhoeff, 1925	+	-	-	-	+	+	-	+	-
Lithobius (Lithobius) variegatus rubriceps Newport, 1845	+	-	-	-	-	-	-	-	-
Lithobius (Sigibius) micropodus Matic, 1980	+	-	-	-	-	-	-	-	-
Lithobius (Sigibius) microps Meinert, 1868	+	+	-	-	-	-	-	-	-
Lithobius (Monotarsobius) crassipes L. Koch, 1862	+	+	-	+	+	+	+	+	+
Lithobius (Monotarsobius) lagrecai Matic, 1962	+	-	-	-	-	-	-	-	-
Pleurolithobius patriarchalis (Berlese, 1894)	-	-	-	*	-	-	-	-	-
Scolopendra canidens Newport, 1844	-	-	-	-	-	-	-	+	+
Scolopendra cingulata Latreille, 1829	+	+	+	+	+	+	-	+	+

	SIC	EOL	UST	EGA	PAN	MAL	LIN	LAM	TUN
Scolopendra morsitans Linné, 1758	-	-	-	-	-	-	-	-	*
Scolopendra oraniensis Lucas, 1846	+	+	+	+	-	+	-	-	-
Cormocephalus gervaisianus (C.L. Koch, 1841)	-	-	-	-	-	-	-	-	+
Otostigmus spinicaudus (Newport, 1844)	-	-	-	-	-	-	-	-	+
Plutonium zwierleinii Cavanna, 1881	+	-	-	-	-	-	-	-	-
Cryptops anomalans Newport, 1844	+	-	-	-	-	-	-	-	-
Cryptops hortensis Leach, 1815	+	-	-	-	-	-	-	-	-
Cryptops numidicus Lucas, 1846	-	-	-	-	-	-	-	-	?
Cryptops punicus (Silvestri, 1896)	+	-	+	-	-	-	-	+	+
Cryptops trisulcatus Brölemann, 1902	+	+	+	+	+	+	-	-	?
Himantarium gabrielis (Linné, 1767)	+	+	+	+	+	+	-	+	+
Himantarium mediterraneum (Meinert, 1870)	+	-	-	-	-	-	+	+	+
Mesocanthus albus Meinert, 1870	-	-	-	-	-	-	-	-	+
Stigmatogaster dimidiatus (Meinert, 1870)	+	+	-	-	+	-	-	+	+
Stigmatogaster gracilis (Meinert, 1870)	+	+	-	+	-	+	-	-	+
Stigmatogaster superbus (Meinert, 1870)	+	-	-	-	-	-	-	-	?
Bothriogaster signata (Kessler, 1874)	-	-	-	-	-	*	-	-	+
Orya barbarica (Gervais, 1835)	-	-	-	-	-	-	-	-	+
Dignathodon microcephalus (Lucas, 1846)	+	+	-	+	-	+	-	-	+
Henia (Henia) pulchella (Meinert, 1870)	+	-	-	-	-	-	-	-	+
Henia (Meinertia) bicarinata (Meinert, 1870)	+	+	-	+	+	+	+	+	+
Henia (Pseudochaetechelyne) brevis (Silvestri, 1896)	-	-	-	-	+	-	-	-	-
Henia (Chaetechelyne) vesuviana (Newport, 1845)	+	+	-	-	+	+	-	-	+
Hydroschendyla submarina (Grube, 1872)	+	+	-	+	-	-	+	-	-
Haploschendyla barbarica (Meinert, 1870)	?	-	-	-	-	-	-	-	+
Nannophilus eximius (Meinert, 1870)	+	+	-	+	+	-	+	+	+
Schendyla mediterranea Silvestri, 1897	+	-	-	-	-	-	-	-	-
Schendyla monoeci Brölemann, 1904	+	-	-	-	-	-	-	-	-
Schendyla montana (Attems, 1895)	-	-	-	-	-	-	-	-	?
Schendyla nemorensis (C.L. Koch, 1836)	+	+	-	-	+	-	-	-	+
Schendyla n. sp.	-	-	-	-	-	+	-	-	-
Pachymerium ferrugineum (C.L. Koch, 1835)	+	+	-	+	+	+	+	+	+
Gnathoribautia bonensis (Meinert, 1870)	+	-	-	-	-	-	-	-	+

	SIC	EOL	UST	EGA	PAN	MAL	LIN	LAM	TUN
Clinopodes flavidus C.L. Koch, 1847	+	+	-	+	-	+	-	-	-
Geophilus carpophagus Leach, 1815	+	+	-	+	+	-	-	-	+
Geophilus flavus (DeGeer, 1778)	+	-	-	-	-	-	-	-	+
Geophilus insculptus Attems, 1895	+	-	-	-	+	-	-	+	?
Geophilus linearis C.L. Koch, 1835	-	-	-	+	-	-	-	-	-
Geophilus osquidatum Brölemann, 1909	+	-	-	-	-	-	-	-	-
Geophilus piae Minelli, 1983	+	-	-	-	-	-	-	-	-
Geophilus pusillus (Meinert, 1870)	-	-	-	-	-	-	-	-	+
Geophilus richardi (Brölemann, 1904)	+	-	-	-	-	-	-	-	-
Geophilus truncorum (Bergsoe & Meinert, 1866)	-	-	-	-	-	-	-	-	+
Simophilus frenum Silvestri, 1896	-	-	-	-	-	-	-	-	+
Tuoba poseidonis (Verhoeff, 1901)	+	+	-	+	-	+	-	+	?
Strigamia acuminata (Leach, 1815)	+	-	-	-	-	-	-	-	-
Total	48	25	7	20	18	20	8	17	35

TAB. III - Chorological spectrum of the Maltese centipedes; *Lithobius forficatus* (Linné, 1758), *L. peregrinus* Latzel, 1880 and *Schendyla* n. sp. are not included; number of species and percentage frequency for each chorotype class and chorotype are given in parentheses.

Chorotype class (n. of spp. ; %)	Chorotypes (n. of spp. ; %)	Species
Species widely distributed in Holoarctic Region (4; 22.2)	W-Palaearctic (2; 11.1)	*Lithobius crassipes* L. Koch, 1862
		Pachymerium ferrugineum (C.L. Koch, 1835)
	Turano-European (1; 5.5)	*Clinopodes flavidus* C.L. Koch, 1847
	Turano-Mediterranean (1; 5.5)	*Bothriogaster signata* (Kessler, 1874)
Species widely distributed in Europe (2; 11.1)	European (1; 5.5)	*Lithobius lapidicola* Meinert, 1872
	S-European (1; 5.5)	*Lithobius castaneus* Newport, 1844
Species widely distributed in the Mediterranean area (12; 66.6)	Mediterranean (8; 44.4)	*Scutigera coleoptrata* (Linné, 1758)
		Scolopendra cingulata Latreille, 1829
		Cryptops trisulcatus Brölemann, 1902
		Himantarium gabrielis (Linné, 1767)
		Stigmatogaster gracilis (Meinert, 1870)
		Dignathodon microcephalus (Lucas, 1846)
		Henia bicarinata (Meinert, 1870)
		Tuoba poseidonis (Verhoeff, 1901)
	W-Mediterranean (4; 22.2)	*Eupolybothrus nudicornis* (Gervais, 1837)
		Lithobius trinacrius Verhoeff, 1925
		Scolopendra oraniensis Lucas, 1846
		Henia vesuviana (Newport, 1845)